

## § 22.651

[59 FR 59507, Nov. 17, 1994; 60 FR 9890, Feb. 22, 1995]

### 470–512 MHz TRUNKED MOBILE OPERATION

#### § 22.651 470–512 MHz channels for trunked mobile operation.

The following channels are allocated for assignment to transmitters providing trunked public mobile service within the specified urban areas. All channels have a bandwidth of 20 kHz and are designated by their center frequencies in MegaHertz.

Houston			
488.0125 .....	491.0125	488.0875 .....	491.0875
488.0375 .....	491.0375	488.1125 .....	491.1125
488.0625 .....	491.0625	488.1375 .....	491.1375
New York-Northern New Jersey			
473.0125 .....	479.0125	473.1625 .....	479.1625
473.0375 .....	479.0375	473.1875 .....	479.1875
473.0625 .....	479.0625	473.2125 .....	479.2125
473.0875 .....	479.0875	473.2375 .....	479.2375
473.1125 .....	479.1125	473.2625 .....	479.2625
473.1375 .....	479.1375	473.2875 .....	479.2875

[59 FR 59507, Nov. 17, 1994; 60 FR 9891, Feb. 22, 1995]

#### § 22.653 Eligibility.

Only licensees already authorized to provide trunked mobile service or their successors in interest are eligible to apply for additional use of these channels for trunked mobile service, and then only in the urban areas already authorized.

#### § 22.655 Channel usage.

The FCC is redesignating the public mobile channels in the 470–512 MHz range from trunked mobile operation to point-to-multipoint operation as the demand for trunked mobile service decreases.

(a) The licensees in each market shall measure channel usage at least once every 3 months. These measurements shall be reported to the FCC within 30 days. Measurements shall be taken during the busiest 12-hour periods on 3 days (within a 7-day period) having normal usage. The information must be reported separately for each of the 3 days selected, must be reported by dates, and must disclose the following:

(1) The number of mobile units in service during each of the days specified;

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(2) The number of calls completed each hour;

(3) The total number of minutes during each hour that the channels were utilized for communications by the mobile units;

(4) The average channel usage for the busiest hour for the 3 days measured; and

(5) Any additional information that more accurately reflects channel usage.

(b) If the measured probability of blocking decreases below 25%, the FCC will redesignate channels not needed to maintain blocking at 25% or less. The number of channels needed to maintain blocking below 25% will be determined from the channel usage reports and the Erlang C tables.

(c) Although two or more channels are necessary to provide trunked service, the FCC may, pursuant to this section, reduce to one the number of channels assigned. In such cases, the licensee may provide non-trunked two-way public mobile service on the one remaining channel.

#### § 22.657 Transmitter locations.

The purpose of the rules in paragraphs (a) and (b) of this section is to define the areas in which the 470–512 MHz channels are allocated for public mobile use. The purpose of the rules in paragraphs (c) through (f) of this section is to reduce the likelihood that interference to television reception from public mobile operations on these channels will occur. The protected TV station locations specified in paragraphs (d), (e)(1) and (f) of this section are the locations of record as of September 1974, and these do not change even though the TV stations may have been subsequently relocated.

(a) *Base transmitter locations.* Base transmitter locations must be within 80 kilometers (50 miles) of the designated locations in this paragraph. Mobile transmitters must not be operated at locations more than 129 kilometers (80 miles) from the designated locations in this paragraph.

Urban area	N. latitude	W. longitude
Houston, TX .....	29°45'26"	95°21'37"
New York, NY–NE NJ .....	40°45'06"	73°59'39"

(b) *Mobile area of operation.* Mobile transmitters must not be operated at locations more than 48 kilometers (30 miles) from all associated base stations.

(c) *Protection from intermodulation interference.* Base transmitter locations must be at least 1.6 kilometers (1 mile) from the current main transmitter locations of all TV stations transmitting on TV channels separated by 2, 3, 4, 5, 7, or 8 TV channels from the TV channel containing the frequencies on which the base station will transmit. This requirement is intended to reduce the likelihood of intermodulation interference.

(d) *Adjacent channel protection from mobile transmitters.* Base transmitter locations must be at least 145 kilometers (90 miles) from the applicable protected TV station locations specified in this paragraph. This requirement is intended to provide a 0 dB minimum desired to undesired signal strength ratio at the Grade B contour of an adjacent channel TV station.

Mobile transmitter frequency range	Protected TV station location	TV channel
470–476 MHz.	Lancaster, PA 40°15'45" 76°27'49" ....	(15)
476–482 MHz.	Scranton, PA 41°10'58" 75°52'21" .....	(16)

(e) *Co-channel protection from mobile transmitters.* Base transmitter locations must be at least the distance specified in paragraph (e)(2) of this section from the applicable protected TV station locations specified in paragraph (e)(1) of this section. This requirement is intended to provide a 40 dB minimum desired to undesired signal strength ratio at the Grade B contour of a co-channel TV station.

(1) The protected TV station locations are as follows:

Mobile transmitter frequency range	Protected TV station location
470–476 MHz.	Washington, DC 38°57'17" 77°00'17".
476–482 MHz.	Lancaster, PA 40°15'45" 76°27'49".

(2) The required minimum distance depends upon the effective radiated

power (ERP) of the most powerful mobile transmitter(s) in the system:

Mobile unit ERP (watts)	Minimum distance	
	Kilometers	Miles
60 .....	193	(120)
50 .....	185	(115)
25 .....	177	(110)
10 .....	169	(105)
5 .....	161	(100)

(f) *Co-channel protection from base transmitters with high antennas.* This paragraph applies only to base transmitter locations in the New York-Northeastern New Jersey urban area that utilize an antenna height of more than 152 meters (500 feet) above average terrain. The distance between the location of such a base transmitter and the applicable protected TV station location specified in this paragraph must equal or exceed the sum of the distance from the base transmitter location to the radio horizon in the direction of the specified location and 89 kilometers (55 miles—representing the distance from the main transmitter location of the TV station to its Grade B contour in the direction of the base transmitter). The distance to the radio horizon is calculated as follows:

$$d = \sqrt{17 \times h}$$

where

d is the distance to the radio horizon in kilometers

h is the height of the antenna center of radiation above ground level in meters

Base transmitter frequency range	Protected TV station location
470–476 MHz.	Washington, DC 38°57'17" 77°00'17".
476–482 MHz.	Lancaster, PA 40°15'45" 76°27'49".

(g) The FCC may waive specific distance separation requirements of paragraphs (d) through (f) of this section if the applicant submits an engineering analysis which demonstrates that terrain effects and/or operation with less effective radiated power would satisfy the applicable minimum desired to undesired signal strength ratios at the Grade B contours of the protected TV

stations. For this purpose, the Grade B contour of a TV station is deemed to be a circle with a 89 kilometer (55 mile) radius, centered on the protected TV station location, and along which the median TV signal field strength is 64 dBµV/m. In any showing intended to demonstrate compliance with the minimum desired to undesired signal ratio requirements of this section, all predicted field strengths must have been determined using the UHF TV propagation curves contained in part 73 of this chapter.

#### § 22.659 Effective radiated power limits.

The purpose of the rules in this section, which limit effective radiated power (ERP), is to reduce the likelihood that interference to television reception from public mobile operations on these channels will occur. The protected TV station locations specified in this section are the locations of record as of September 1974, and these do not change even though the TV stations may have been subsequently relocated.

(a) *Maximum ERP.* The ERP of base transmitters must not exceed 100 Watts under any circumstances. The ERP of mobile transmitters must not exceed 60 Watts under any circumstances.

(b) *Co-channel protection from base transmitters.* The ERP of base transmitters in the New York-Northeastern New Jersey urban area must not exceed the limits in the tables referenced in paragraphs (b)(2) and (b)(3) of this section. The limits depend upon the height above average terrain of the base transmitter antenna and the distance between the base transmitter and the nearest protected TV station location in paragraph (b)(1) of this section.

(1) The protected TV station locations are as follows:

Base transmitter frequency range	Protected TV station location
470–476 MHz.	Washington, DC 38°57'17" 77°00'17".
476–482 MHz.	Lancaster, PA 40°15'45" 76°27'49".

(2) Tables E-8 and E-9 of this section apply to base transmitters in the New York-Northeastern New Jersey urban area that transmit on channels in the 476–482 MHz range.

(3) Tables E-10 and E-11 of this section apply to base transmitters in the New York-Northeastern New Jersey urban area that transmit on channels in the 470–476 MHz range.

(c) *Adjacent channel protection from base transmitters.* The ERP of base transmitters must not exceed the limits in Table E-12 of this section. The limits depend upon the height above average terrain of the base transmitter antenna and the distance between the base transmitter and the nearest protected TV station location specified in paragraph (c)(1) of this section.

(1) The protected TV station locations are as follows:

Base transmitter frequency range	Protected TV station location	TV channel
470–476 MHz.	Hanover, NH 43°42'30" 72°09'16" .....	(15)
476–482 MHz.	Lancaster, PA 40°15'45" 76°27'49" ....	(15)
482–488 MHz.	Scranton, PA 41°10'58" 75°52'21" .....	(16)
	Hanover, NH 43°42'30" 72°09'16" .....	(15)

(2) Table E-12 of this section applies to base transmitters in the New York-Northeastern New Jersey urban area.

TABLE E-8.—MAXIMUM ERP (WATTS) FOR BASE TRANSMITTERS (HAAT 152 METERS OR LESS)

Distance to protected TV station in kilometers (miles)	Antenna height above average terrain in meters (feet)									
	15 (50)	30 (100)	46 (150)	61 (200)	76 (250)	91 (300)	107 (350)	122 (400)	137 (450)	152 (500)
209 (130) .....	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
201 (125) .....	1000	1000	1000	1000	1000	1000	1000	850	750	725
193 (120) .....	1000	1000	1000	1000	900	750	675	600	550	500
185 (115) .....	1000	1000	800	725	600	525	475	425	375	350
177 (110) .....	850	700	600	500	425	375	325	300	275	225
169 (105) .....	600	475	400	325	275	250	225	200	175	150
161 (100) .....	400	325	275	225	175	150	140	125	110	100
153 (95) .....	275	225	175	125	110	95	80	70	60	50